

WHAT IS CLAIMED:

1. A method for indicating whether or not a blood bag may be transfused to a patient, the blood bag having an electronic chip fixed thereto, the electronic chip having a loop antenna structured and arranged to communicate with an electronic communication device and a simplified electronic communication device having a loop antenna connected to a programmable automation device, the method comprising:

transmitting an expiration date, defined as starting from an initial time determined by donation in a parent blood bag, carried out in a blood transfusion unit, by using the electronic communication device which is combined with an agitating balance, the expiration date being stored in the electronic chip of the parent blood bag and then transferred to the electronic chip of a primary blood bag, then transferred to the electronic chips of secondary blood bags, and according to which a maximum allowed time  $dT$  for being kept outside a controlled-atmosphere enclosure is also defined; and

allowing the blood bag to be requalified when it is returned to the enclosure when both the time  $dT$  and the expiration date have not expired, and for the blood bag to be dequalified when one of the time  $dT$  and the expiration date have expired.

2. The method according to claim 1, wherein when the blood bag is transported from one controlled-atmosphere enclosure to another controlled-atmosphere enclosure in a vehicle that has a refrigerated enclosure, the blood bag is requalified and a requalification date is stored in the electronic chip when a storage temperature of the refrigerated enclosure has been complied with during transport, and when the temperature

has not been complied with for a time less than or equal to time  $dT$ , the blood bag is dequalified and the date is not stored when the time  $dT$  has expired.

3. The method according to claim 1, wherein when the blood bag is sent to an operating theater, it is requalified at a time when taken out of a controlled-atmosphere enclosure, a requalification date then being stored in the electronic chip, and when the blood bag is not used, either the blood bag is requalified, the requalification date being stored in the electronic chip, and the blood bag is returned to the controlled-atmosphere enclosure, or it is dequalified.

4. The method according to claim 1, further comprising:

storing the blood bag in a compartmentalized controlled-atmosphere enclosure, each compartment being equipped with a specialized electronic communication device, the compartmentalized controlled-atmosphere enclosure being managed by a programmable automation device;

checking the blood bags contained in the compartments at regular intervals for one of requalifying the blood bags, dequalifying the blood bags, and detecting that the requalified blood bag is approaching the expiration date,

wherein each compartment is structured and arranged with at least three display lights which are turned on according to a result of the check.

5. The method according to claim 4, wherein the at least three display lights indicate that the expiration date is one of sufficiently in the future, imminent, and has passed.

6. The method according to claim 1, further comprising:

subjecting the blood bag to a final check by an autonomous electronic communication device,

wherein the check is not recorded by the electronic chip.

7. The method according to claim 1, further comprising:

limiting one of a number of times the blood bag may be kept outside a controlled-atmosphere enclosure and a total time for which the blood bag may be kept outside the controlled-atmosphere enclosure.

8. The method according to claim 1, further comprising:

returning the blood bag to the blood transfusion unit when the healthcare unit has no immediate use for the blood bag, so long as a time left before reaching the expiration date is sufficient for allowing transfer to one of the blood transfusion unit and to another healthcare unit, and when the time elapsed since the last requalification is shorter than time dT.

9. A method of monitoring a blood bag, the method comprising:

transmitting data, including an expiration date, to a recordable medium fixed to the blood bag;

monitoring a maximum allowed time  $dT$  that the blood bag may be kept outside a controlled-atmosphere enclosure and the expiration date;

indicating whether the blood bag may be transfused to a patient when both the time  $dT$  and the expiration date have not expired; and

indicating whether the blood bag may not be transfused to a patient when one of the time  $dT$  and the expiration date has expired.

10. The method according to claim 9, further comprising:

transporting the blood bag from one controlled-atmosphere enclosure to another controlled-atmosphere enclosure in a vehicle that has a refrigerated enclosure; and

monitoring a storage temperature of the refrigerated enclosure to insure that the temperature has been maintained.

11. The method according to claim 9, further comprising:

storing the blood bag in a compartmentalized controlled-atmosphere enclosure, each compartment being equipped with a specialized electronic communication device, the compartmentalized controlled-atmosphere enclosure being managed by a programmable automation device;

checking the blood bags contained in the compartments at regular intervals for detecting when the blood bag is approaching the expiration date,

wherein each compartment being structured and arranged with at least three display lights which are turned on according to the result of the check.

12. The method according to claim 9, further comprising:

subjecting the blood bag to a final check by an autonomous electronic communication device,

wherein the check is not recorded by the electronic chip.

13. The method according to claim 9, further comprising:

limiting one of a number of times the blood bag may be kept outside a controlled-atmosphere enclosure and a total time for which the blood bag may be kept outside the controlled-atmosphere enclosure.

14. The method according to claim 9, further comprising:

returning the blood bag to the blood transfusion unit when the healthcare unit has no immediate use for the blood bag, so long as the time left before reaching the expiration date is sufficient for allowing transfer to one of the blood transfusion unit and to another healthcare unit.

15. The method according to claim 9, further comprising:

transferring the expiration date stored in the electronic chip of a parent blood bag to the electronic chip of a primary blood bag, and to the electronic chips of secondary blood bags.

16. A blood bag and recordable medium monitored in accordance with the method of claim 9.

17. A controlled-atmosphere enclosure structured and arranged to practice the method of claim 9.

18. A vehicle having a controlled-atmosphere enclosure structured and arranged to practice the method of claim 9.

19. A method of monitoring a blood bag, the method comprising:  
monitoring a maximum allowed time  $dT$  that the blood bag may be kept outside a controlled-atmosphere enclosure and an expiration date stored in an electronic chip fixed to the blood bag; and

indicating whether the blood bag may be transfused to a patient when the time  $dT$  and the expiration date have not expired.

20. The method according to claim 19, further comprising:  
transporting the blood bag from one controlled-atmosphere enclosure to another controlled-atmosphere enclosure in a refrigerated enclosure; and  
monitoring a storage temperature of the refrigerated enclosure to insure that the temperature has been maintained.

21. The method according to claim 19, further comprising:

storing the blood bag in a compartmentalized controlled-atmosphere enclosure;

and

checking the blood bags contained in the compartments at regular intervals to detect when the blood bag is approaching the expiration date,

wherein each compartment being structured and arranged with at least three display lights which are turned on according to the result of the check.

22. The method according to claim 21, wherein the at least three display lights indicate that the expiration date is one of sufficiently in the future, imminent, and has passed.

23. The method according to claim 19, further comprising:

subjecting the blood bag to a final check by an autonomous electronic communication device,

wherein the check is not recorded by the electronic chip.

24. The method according to claim 19, further comprising:

limiting one of a number of times the blood bag may be kept outside a controlled-atmosphere enclosure and a total time for which the blood bag may be kept outside.

25. The method according to claim 19, wherein each compartment being equipped with a specialized electronic communication device, the compartmentalized controlled-atmosphere enclosure being managed by a programmable automation device.

26. A method for indicating whether or not the blood bag may be transfused to a patient, the blood bag having an electronic chip fixed thereto the method comprising:

defining an expiration date starting from an initial time determined by donation in a parent blood bag;

entering the expiration date into the electronic chip of the blood bag and defining a maximum allowed time  $dT$  the parent blood bag can be kept outside a controlled-atmosphere enclosure; and

when the blood bag has been removed from the controlled-atmosphere enclosure, one of qualifying, requalifying, or dequalifying the blood bag, wherein requalifying comprises determining when both the time  $dT$  and the expiration date have not expired, whereby the blood bag is returnable to the enclosure, and wherein dequalifying comprises determining that one of the time  $dT$  and the expiration date have expired, whereby the blood bag is to be destroyed.

27. The method according to claim 26, wherein the defining an expiration date is carried out in a blood transfusion unit, by using the electronic communication device which is combined with an agitating balance.

28. The method according to claim 26, further comprising:



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transferring the expiration date to the electronic chip of a primary blood bag and then transferring to the electronic chips of secondary blood bags.